

1. WELCOME

Thank you for using VaDia Pulsator Testing software; BioControl's PC-program for analyzing VaDia pulsator loggings.

BioControl (www.biocontrol.no) provides technology for biology with focus on hi-tech products for the livestock industry. We already do this for more than 20 years now and have gained great competence and skills in this specialized area.

The name VaDia is short for 'Vacuum Diagnostics' and illustrates the value of this hi-tech instrument for technicians, advisors and other professionals in the dairy industry that want to understand and manage udder health and milk quality problems.

VaDia and the VaDia software have been developed by BioControl in close cooperation with the International Dairy Federation (www.fil-idf.org) and Tine, the Norwegian dairy farmers cooperative (www.tine.no).

We hope that VaDia and its software will enable you to get better understanding of the basic milking, give better milking advice and achieve better udder health and milk quality results.

This document is part of the following document family:

1. 'VaDia Startup Guide'
2. 'VaDia Viewer User Manual'
3. 'Understanding VaDia Viewer data'
4. 'VaDia Pulsator Testing User Manual'

Latest versions of these documents can be found on our website www.biocontrol.no

Manual to start-up and use VaDia hardware

This manual explains how to work with the VaDia Pulsator Testing software which is designed for viewing, analyzing and report making of the VaDia pulsator loggings. Please refer to the VaDia Startup Guide that is supplied with your VaDia for instructions how to work with the VaDia hardware.



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! This manual is for VaDia Pulsator Testing software version 1.0

Visit the section 'Community' on www.biocontrol.no for latest software and documentation

1.1. Changes in this manual compared to previous version

- Version 1.0 is the first version of this manual.

2. PRODUCT DESCRIPTION

The VaDia Pulsator Testing software (VPT-software) enables VaDia to be used for pulsator testing, both for dry-testing acc. to ISO 6690 and for detailed analysis during milking (Milking Time Test). Testing can be done both online (Bluetooth streaming for immediate result during the test) and offline (analyzing all data after the test).

The VPT-software also offers Fall-off and Attachment testing acc. to ISO 5707.

3. INSTALL AND STARTUP VPT-SOFTWARE

3.1. Install and activate

Run the program VPT.exe.

The VPT-software is protected by a license key. You can work with the VPT-software within a 30 day evaluation period after installing the VPT-software on your computer. To activate the VPT-software your PC has to be online.

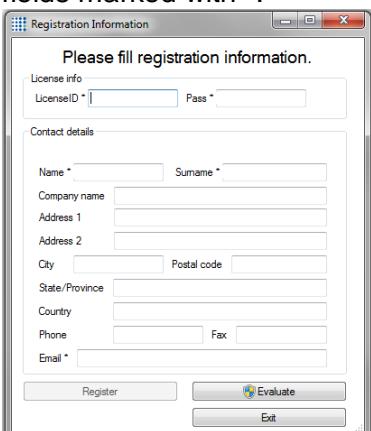
Part of the activation procedure is that your contact details are registered. This is necessary for BioControl to inform you about important updates and relevant upgrades.

BioControl will only use this email address to send information related to VaDia and will not share this information with others.

! Your personal license key and password are printed on the VPT CD. This is a personal license for runtime use of the VPT-software on one computer only. Make sure you store this CD somewhere safe so that you can find it again, also make a copy of this license data and store it in a safe place. You need this license key and password again when re-installing the VPT-software onto another PC (e.g. in case you get a new PC).
Please contact support@biocontrol.pl if the activation doesn't work or to enquire about getting a LicenseID if you have downloaded the VPT-software for evaluation from our website.

3.2. Activate VPT-software

When you run the program for the first time, the following screen will show. Please enter all fields marked with *.



Your PC may come with a 'User Account Control' message and ask if the program VPT.exe is allowed to make changes to your computer. Click 'Yes'.

! Make sure you activate within 30 days, otherwise the VPT-software will stop working!

3.3. VPT startup screen



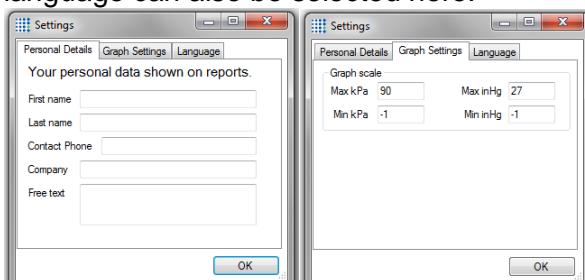
1= Navigation keys

2= Source: which VaDia data is displayed (Bluetooth streaming data or file-path)

3= VaDias that VPT has connected via Bluetooth (not necessary to pair again)

3.4. Setup

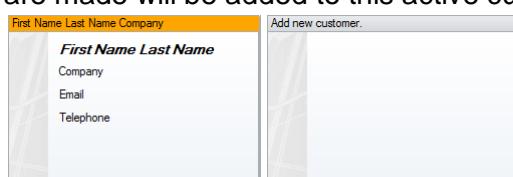
Click 'Settings' to enter your personal data that will be shown on all reports. Scale and language can also be selected here.



3.5. Customer management

Click 'Customer' to enter and manage customer data. Create a new customer by double-clicking the customer card 'add new customer'. Edit the customer card data by clicking on the field to edit.

The selected customer is shown in the left column on the screen. All data and reports that are made will be added to this active customer until another customer is selected.



4. PULSATION ANALYSIS

VPT has two data-analysis modes: offline and online.

- Offline means that an existing vd5-file is loaded into the VPT-program
- Online means that the VaDia is connected to the PC via Bluetooth and that the data is continuously streamed into the VPT-program for continuous and real time analysis.

To explain the working of the VPT-program data from a vd5-file called 'VPT demo' is used.

This file is present on the CD that was supplied with your VPT-program and can also be downloaded from the Community Section on our website

<http://www.biocontrol.no/index.php?root=comm&branch=vadia&leaf=soft>.

The explanations in this chapter are valid for both the online and the offline mode; the only difference is the data entry method (vd5-file or streaming).

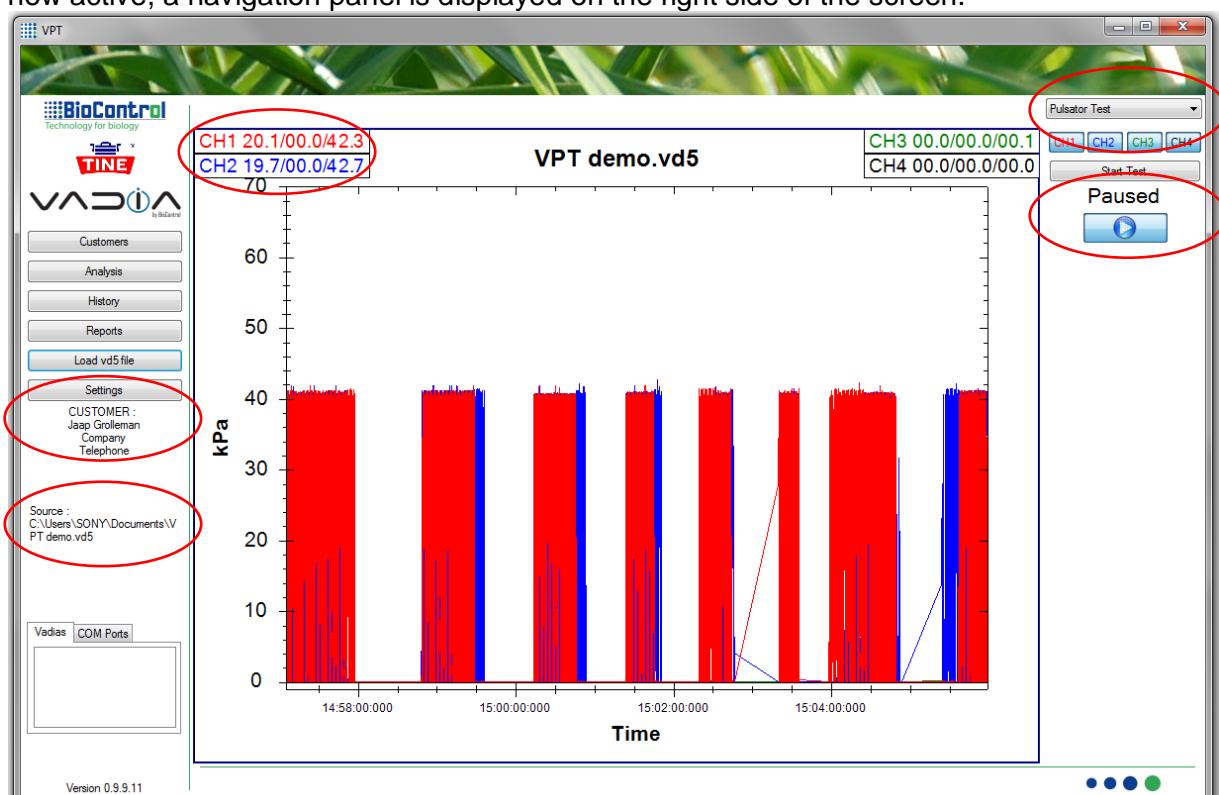
To fully understand the functionality and potential of the VPT-software we recommend you follow this manual step by step (and not read loose chunks) and work with the demo data as explained in this manual.

4.1. VPT offline analysis

Click 'Customers' and create a new customer (or select existing from the list).

Click 'Load vd5 file' and select the file 'VPT demo'.

All data is now loaded and displayed in the active window, notice the content of 'Customer' and 'Source' in the left side of the screen. The navigation keys 'Analysis' and 'History' are now active, a navigation panel is displayed on the right side of the screen.



! When all data is loaded, the program status in the right navigation pane indicates 'Paused'.

! Note that the data can only be analyzed in the 'Paused' mode.

Activate the channel selectors to only display the relevant channels. The average/minimum/maximum value of each channel is displayed in the top of the frame. These values are calculated from the data points as displayed in the current window.

! Make sure that the pull-down menu shows 'Pulsator Test'.

4.2. Graph navigation

Click on the graph to activate it; a blue frame around the graph indicates it is active.

Hot-keys:

'+' and '-' , mouse-wheel zoom in and out

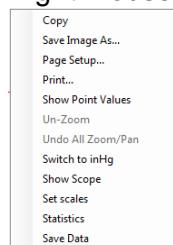
'Ctrl' with mouse drag stretch graph

'Shift' with mouse drag set time marker line, mouse drag shows second marker line with delta

'Alt' with mouse drag set vacuum marker line, mouse drag shows second marker line and delta

Pan the graph with left mouse click, hold and then drag.

Right mouse click brings-up settings and other navigation possibilities.



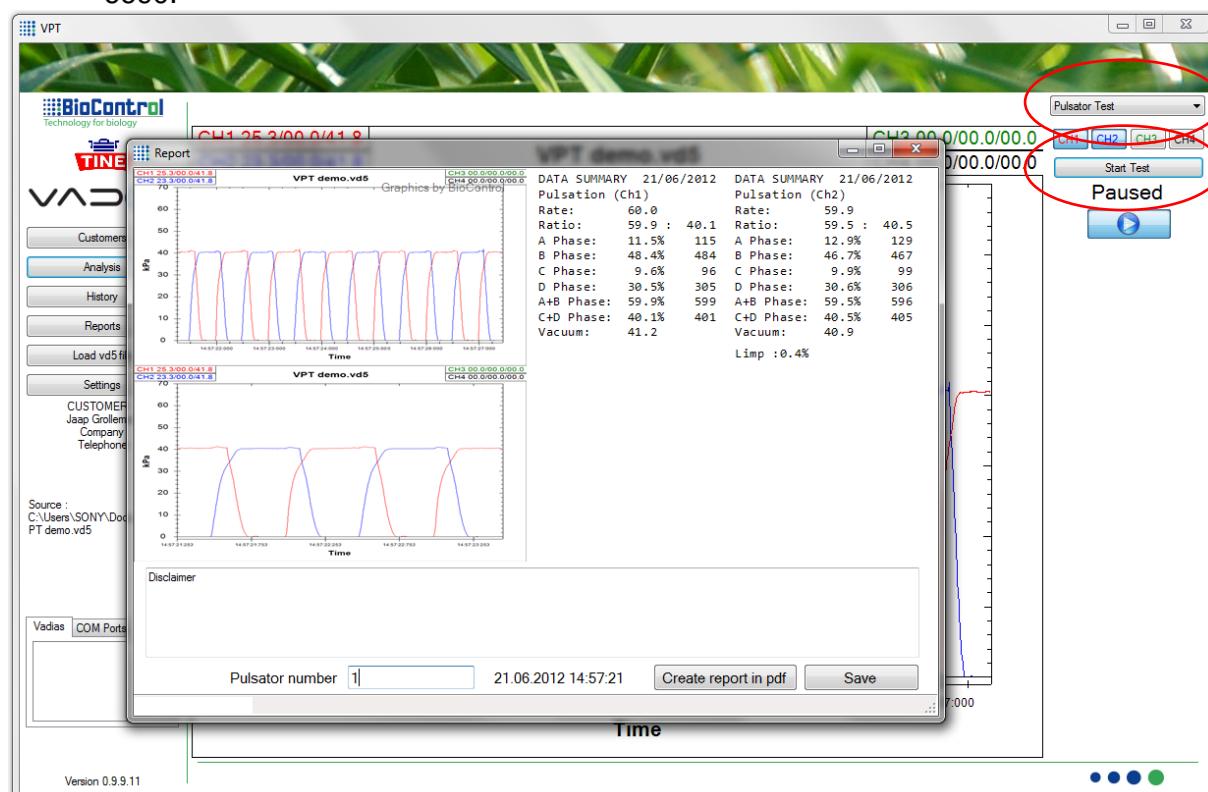
All navigation possibilities explain itself. We recommend you use some time to understand each feature.

4.3. Analyzing the pulsation data

There are two methods: 'manual' and 'automatic'.

Manual method:

1. Select 'Pulsator Test' in the pull-down menu in the right column.
2. Right Mouse click, 'Show Scope'. This displays all data.
3. Put mouse on the pulsator data to analyze and stretch ('Ctrl' and mouse drag) so that the graph shows approx. 20 cycles.
4. Press 'Start Test' in the right column to analyze the pulsation data according to ISO 6690.

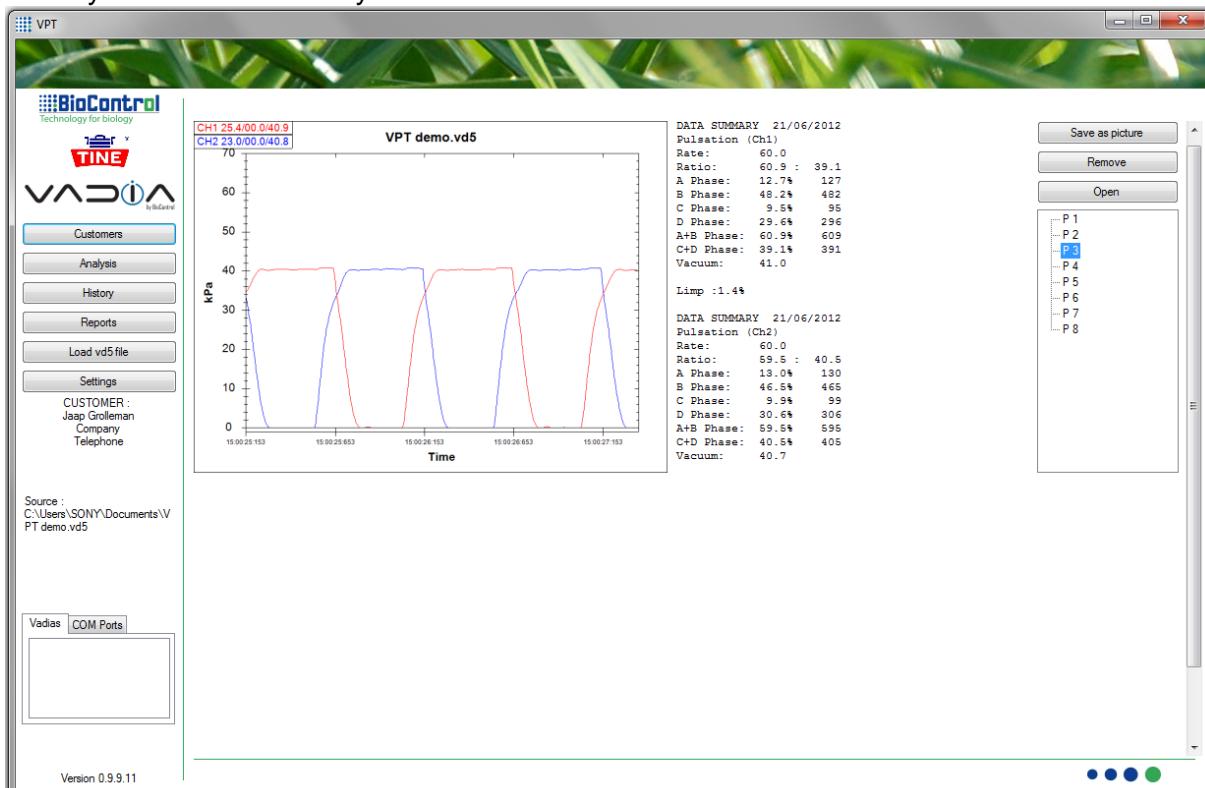


Data Summary lists the values of the analysis according to ISO 6690. The top graph displays the analyzed cycles, the lower graph only a few to make details visible.

5. Enter the pulsator nr. and press 'Save'. The data is now stored in the customer database and can be found in 'History'. A report pdf can be made from this screen also.
6. 'Show scope' after each analysis (right mouse click); you then quickly know where you are in the total recording and can stretch the next pulsator data.
7. Fast-keys: F2 = Start Test, Enter = Save, Space = toggle Paused/Running.

4.4. Overview of pulsation analysis

'History' lists all saved analysis.



Here you will also find previous and future recordings and analysis of this customer so you can compare with previous recordings.

An analysis is displayed by clicking on the recording in the list. An analysis can also be removed by selecting and 'Del' key.

Careful with 'Remove' since it will remove the entire recording.

Use 'Open' to add more data to the list of this analysis, e.g. pulsator data from another VaDia, or to create a report.

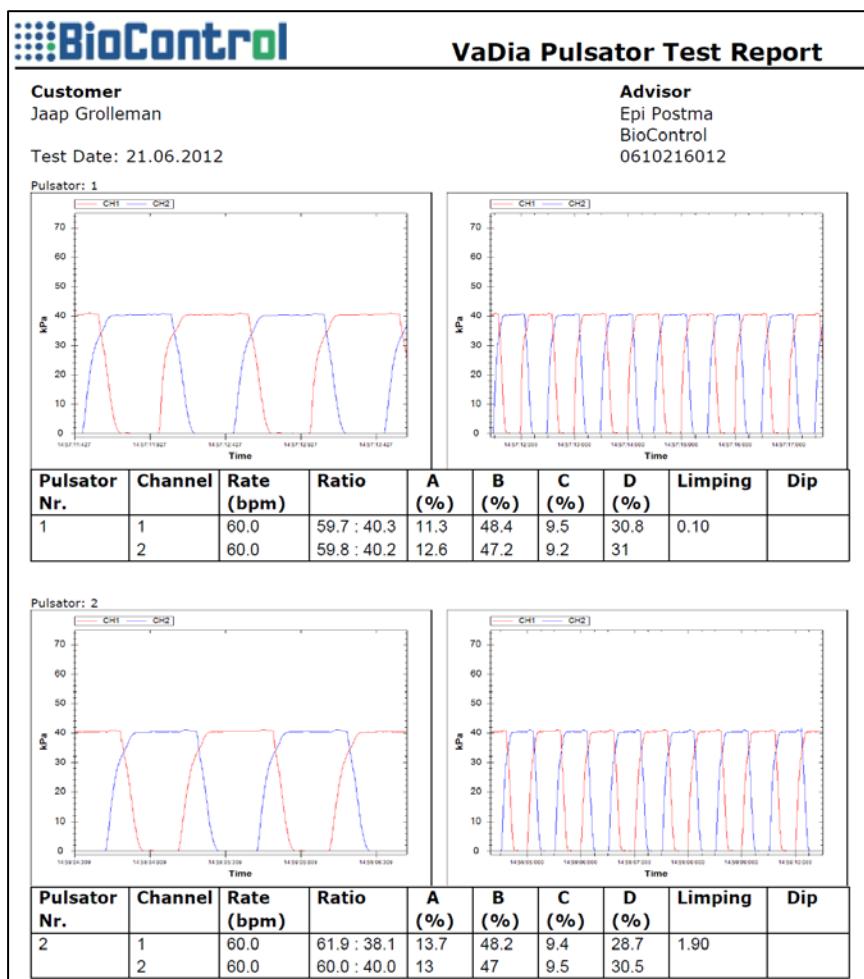
4.5. PDF-report of pulsation analysis

'Report' generates a pdf-report of the active analysis. Page 1 of the report lists a total overview of all pulsators, the following pages lists details of each pulsator.

Most information in the report is self-explanatory. 'Limping' and 'dip' are calculated as defined in ISO 6690.

Pulsator data that is outside the ISO norm is indicated in this report in a red cell.

VaDia Pulsator Test Report									
Customer					Advisor				
Jaap Grolleman					Epi Postma BioControl 0610216012				
Test Date: 21.06.2012									
Pulsator Nr.	Channel	Rate (bpm)	Ratio	A (%)	B (%)	C (%)	D (%)	Limping	Dip
1	1	60.0	59.7 : 40.3	11.3	48.4	9.5	30.8	0.10	
	2	60.0	59.8 : 40.2	12.6	47.2	9.2	31		
2	1	60.0	61.9 : 38.1	13.7	48.2	9.4	28.7	1.90	
	2	60.0	60.0 : 40.0	13	47	9.5	30.5		
3	1	60.0	61.4 : 38.6	12.7	48.7	9	29.6	1.40	
	2	60.0	60.0 : 40.0	13	47	9.4	30.6		
4	1	60.0	59.9 : 40.1	12.8	47.1	9.6	30.5	1.82	
	2	60.1	61.7 : 38.3	12.9	48.8	8.8	29.5		



4.6. Open dataset in History to add more data

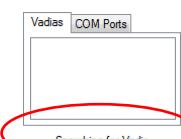
The dataset displayed in 'History' can be reopened to add additional data. This is convenient when working with 2 VaDia's or more, e.g. VaDia 1 contains the recordings of Pulsator 1-40 and VaDia 2 the recordings of Pulsator 41-80. When clicking 'Open', the dataset is now the active dataset again, next analysis are added to this dataset. All 80 pulsators will now be in one report.



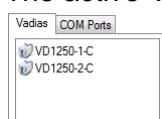
4.7. VPT Bluetooth set-up (online analysis)

Make sure the VaDia's you want to connect to are in Bluetooth-mode and have been paired with your PC. For first time Bluetooth set-up refer to the VaDia Start-up Guide.

The VPT-software will automatically find the VaDia's that are in Bluetooth-mode and that have been paired to the PC. At start-up of VPT the connection box in the left column of the screen will show:



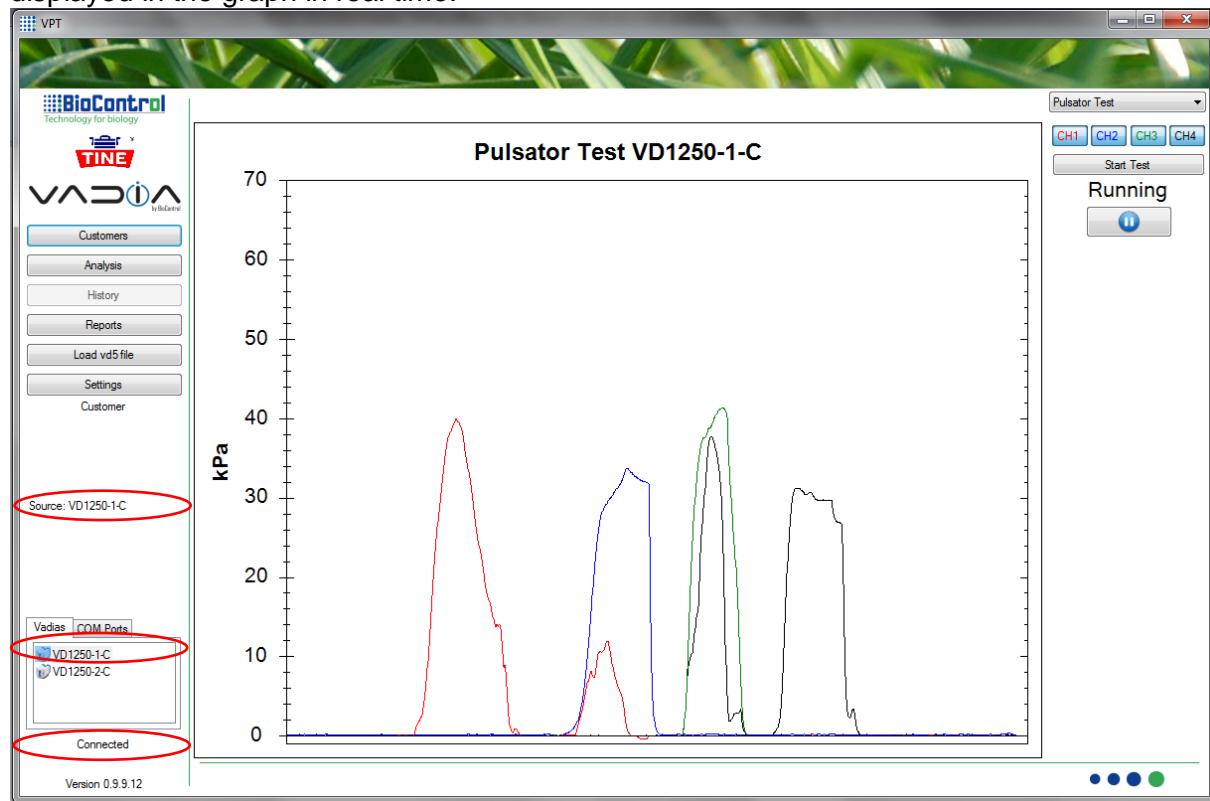
The active VaDia's in range that have been found are listed in the box:



4.8. VPT online analysis

To start an online loading and analysis, select in the left column the VaDia that you want to connect to via Bluetooth.

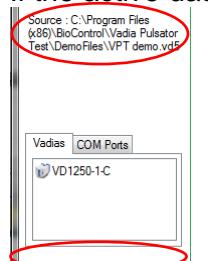
Blow in the vacuum tubes to test if the Bluetooth connection is working, the data will be displayed in the graph in real time.



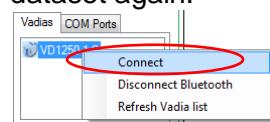
The VPT software now continuously loads the streaming data. When you have collected approx. 10 seconds of streaming pulsator data click to go to 'Paused', the data then freezes. From here refer to chapter 4.1 and further for pulsator data analysis and storing. Click 'Running' to continue with the next pulsator.

4.9. Go to Streaming Bluetooth mode again after opening file

If the active dataset is the dataset from file, the VaDia is not connected.



Right mouseclick the VaDia and Connect to make the Bluetooth streaming data the active dataset again:



4.10. Pulsator test set-up

The milking equipment must be working and in the 'dry' position (so not milking cows). The pictures below show a possible connection of the VaDia for the Pulsator test.



Milking parlour ready for dry-test



Short Pulsator Tubes prepared as 'T-piece'
for the pulsator test
(‘straw’ inserted, open PVC-pipe at end)



VaDia ready for pulsator test



VaDia connected to pulsator tubes using the
'T-pieces'

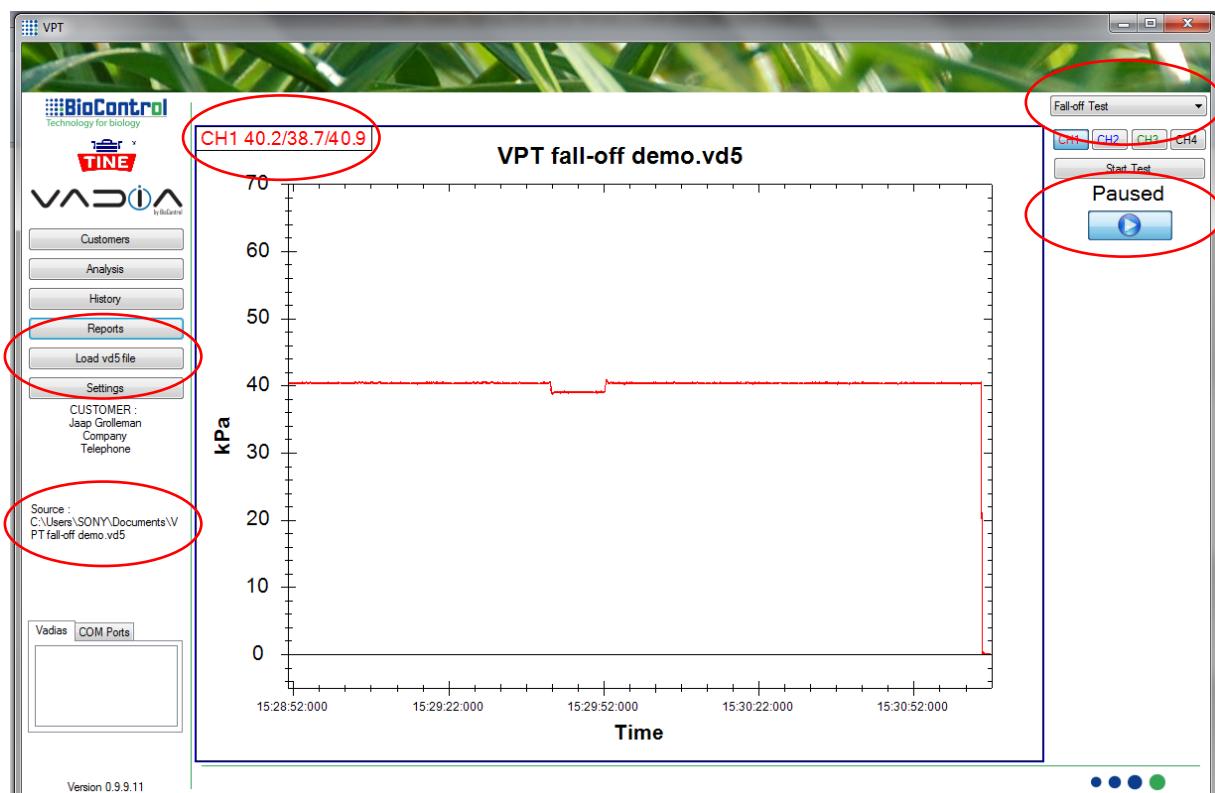
5. FALL-OFF TEST

The Fall-off test records the vacuum recovery response when a cluster falls-off and is attached, refer to ISO 5707 for details. VPT contains a software feature to test Fall-Off and Attachment according to ISO 5707.

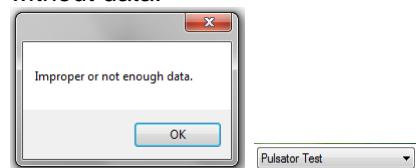
5.1. Fall-off test demo

To explain the working of this software feature, data from a vd5-file called 'VPT Fall-off demo' is used. This file is present on the CD that was supplied with your VPT-program and can also be downloaded from the Community Section on our website <http://www.biocontrol.no/index.php?root=comm&branch=vadia&leaf=soft>.

Select Fall-off Test from the pull-down menu in the right column on the screen. Open the dataset by selecting 'Load vd5 file' in the left column. Make sure the program is in 'Paused' mode; otherwise it doesn't show the entire recording (it actually keeps the file open for further adding of data). Display only the relevant channel (here channel 1).



Note: if the VPT-program shows an error-message 'Improper or not enough data', the VPT-program is probably still in the Pulsator Test mode instead of the Fall-off Test, or you have selected channels without data.

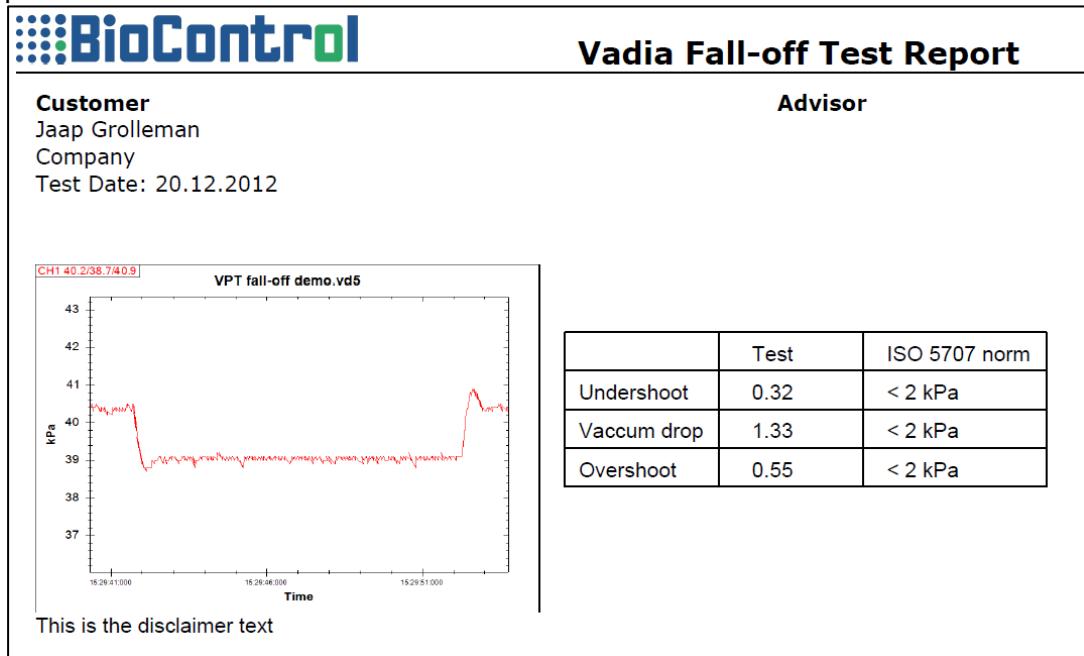


5.2. Fall-off test results and report

Click 'Start Test', the test result is now shown together with the ISO 5707 boundaries.



Press 'Save' to store the test result, the report is now listed in 'history'.
 The free-text area 'disclaimer' will be printed on the report when selecting 'create report in pdf'.



5.3. Fall-off test set-up

The milking equipment must be working and in the 'dry' position (so not milking cows). The VaDia should be connected to the appropriate measuring point at the receiver. The pictures below show a possible connection of the VaDia for the Fall-off test.



VaDia connected to the milk receiver at the point V_m
(exact connection point may vary due to local legislation)



Close-up of Vm



VaDia prepared for Fall-off recording
(measurement tube closed on one end)



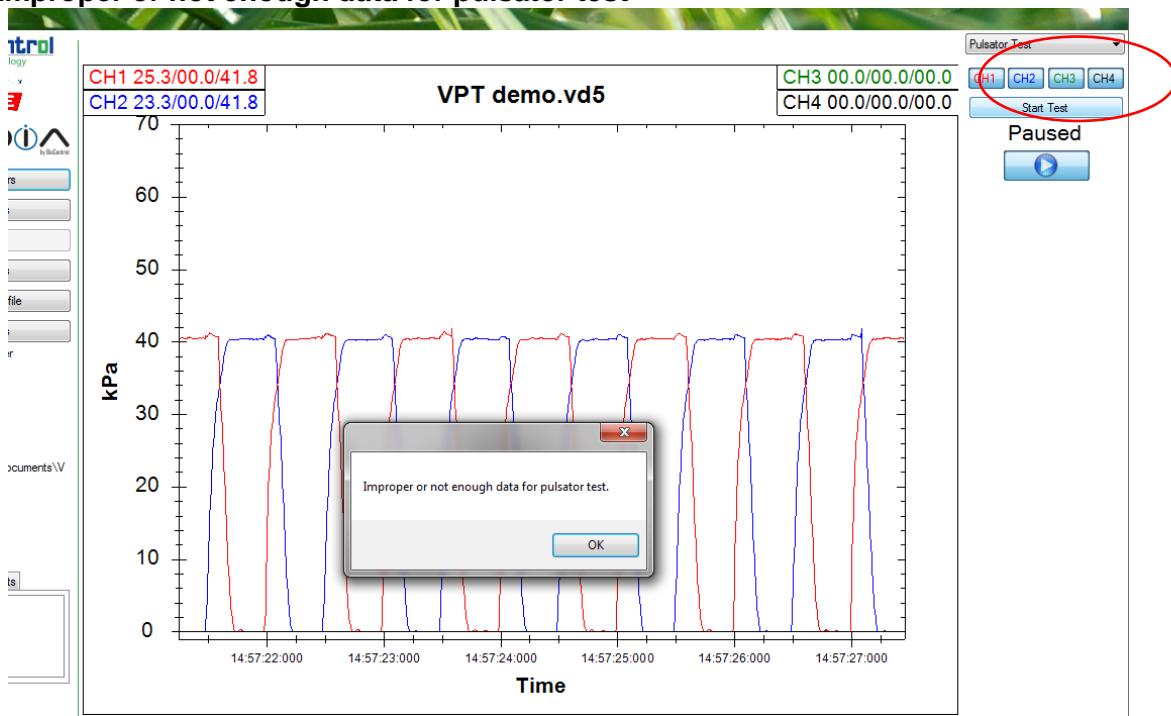
VaDia connected to Vn



Milking parlour must be in 'dry test' during
Fall-off test

6. FAQ's and Trouble Shooting

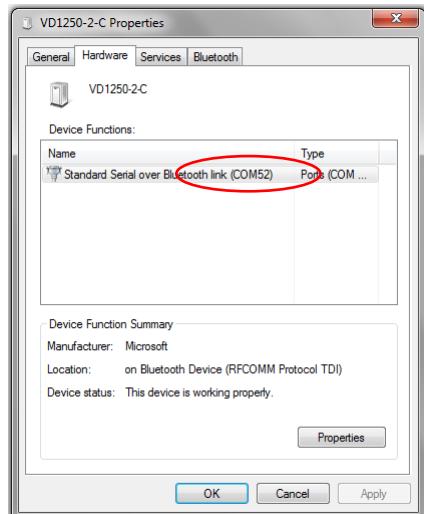
6.1. 'Improper or not enough data for pulsator test'



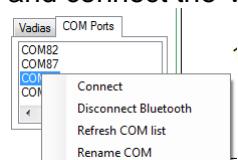
CH3 and CH4 are displayed but have no data. Unselect CH3 and CH4.

6.2. VPT doesn't find a VaDia, although it has been paired

In rare cases it can happen that a VaDia is not found automatically. In that case look-up the virtual COM-Port of this VaDia in the PC's Configuration tools:



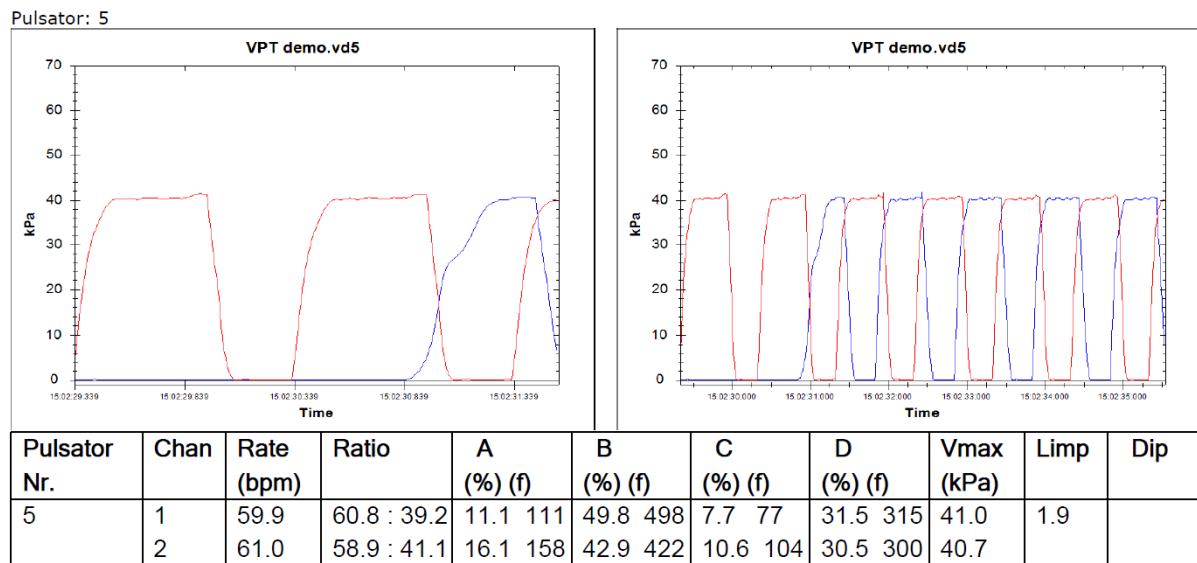
and connect the VPT manually to this virtual COM-Port by selecting it in the tab 'Com Ports':



The VPT-software will then always use this Com Port when it connects to this VaDia in Bluetooth mode.

6.3. The pulsator data is obviously wrong, but VPT doesn't show this as wrong

VPT only tests if the pulsation ratio, limps, bumps and dips are within the boundaries of ISO 6690. Note that a case like pulsator 5 in below graph is still within these boundaries.



References:

support@biocontrol.pl
www.biocontrol.no/vadia